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Societal Context and the Production of Immigrant Status Based Health Inequalities: A Comparative Study of the United States and Canada

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Abstract

Background—We compare disparities in health status between first generation immigrants and others in the U.S. and Canada.

Methods—We used data from the Joint Canada-United States Survey of Health. Regression models adjusted for demographics, socioeconomic status, and health insurance (U.S.).

Results—In both nations, the health advantage belonged to immigrants. Fewer disparities between immigrants and those native-born were seen in Canada versus the U.S. Canadians of every immigrant/race group fared better than American native-born whites.

Discussion—Fewer disparities in Canada and better overall health of all Canadians suggest societal context may create differences in access to the resources, environments and experiences that shape health and health behaviors.

Keywords

health disparities; immigrant; Canada; United States; policy

INTRODUCTION

The goal of this paper is to determine whether health disparities between first generation immigrants and other residents differ between major immigrant receiving nations, and thus whether societal context is implicated in these disparities. We do so by conducting a cross-national comparison of immigrant status based (ISB) disparities in the United States (U.S.) and Canada.

Of late, comparative studies of the U.S. and Canada have proliferated because of the availability of the Joint Canada/U.S. Survey of Health (JCUSH), and because these societies

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lend well to societal analysis (1, 2). Both are economically advanced societies in which, historically, immigration policies and reforms have been similar (3). As a result, both these nations have a relatively large and racially/ethnically diverse proportion of immigrants (12% of the population in the U.S. (4) and 20% of the population in Canada) (5).

On the other hand, these countries are distinguishable by other social policies, particularly those which bear on resource distribution. Overall, Canada is characterized by a universal system of health care while the structure of health care in the U.S. creates a conundrum for the ‘working poor,’ a group in which immigrants in the nation are largely located (6). Canada also has other more generous social welfare policies and programs (7, 8) (9–11) (12). In a prior paper, we examined racial/ethnic disparities in these two nations and found more muted disparities in Canada compared to the U.S.(2). Because we think both race and ISB health disparities in health are associated with disparities in resources, we anticipate a similar cross-national pattern for ISB health disparities.

Regarding the cross-national comparison of these nations, there are two caveats worthy of note. First, the predominant sending countries differ between the U.S. (mainly Latin American nations) and Canada (mostly Asian nations). Both countries, however, are characterized by a ‘healthy immigrant effect’ (convergence of health status between immigrants and non-immigrants) which suggests similarities in the dynamics of immigrant status and health, despite differences in the ethnic composition of immigrants (13, 14). Second, due to differences in current immigration policies, Canadian immigrants tend to be more educated and have higher levels of work-related skills than their U.S. counterparts (3, 15). We address educational differences in our analyses.

Our hypothesis that ISB health disparities will be more pronounced in the U.S. compared to Canada is also supported by prior work which has found better overall health and fewer health disparities in Canada compared to the U.S. (2, 8, 16–24) (23, 24) (21).

METHODS

Data Source

JCUSH is a nationally representative cross-sectional (2002–2003) telephone survey of 5183 Americans and 3505 Canadians 18 years and older. Response rates were 65.5% for Canada and 50.2% for the U.S. (20). Post-stratification adjustments were used to account for non-response. JCUSH data are approaching ten years of age. However, in the intervening decade, neither country has undergone any major shifts that would bring significant doubt on present day relevance of the information. Moreover, JCUSH is the only known data source which makes it possible to *directly* compare individuals *within and across* societies.

Variable Definitions

Main Exposure Variable: Immigrant Status and other Sociodemographic Characteristics—*Immigrant status* was defined as being born outside of the country of residence versus not (i.e., native-born). *Race/ethnicity* was coded as ‘white’ or ‘non-white.’ *Gender* was also dichotomized (male/female), *marital status* coded as married/common-law/living with a partner and single/divorced/separated/widowed, and age coded as a continuous, quadratic term. *Household income* was adjusted for household size and categorized into quintiles, with an indicator variable for missing income (21%). *Education* was coded as: less than high school versus high school or equivalent versus trade certificate or vocational training versus college or university degree. *Home ownership*, *health insurance* (U.S. only) and *having a regular doctor* were dichotomized.

Dependent Variables—Each chronic condition was coded separately. Respondents reported if they had ever been told by a doctor/health professional that they had 1) *heart disease*, 2) *hypertension*, 3) *diabetes*, 4) *asthma*, and 5) *arthritis*. *Depression* was also dichotomized (25). *Difficulties with Activities* was coded dichotomously, as sometimes or often had difficulty with hearing, seeing, walking, climbing stairs, bending, or other similar activities versus never having such difficulties. *Reduction in amount or type of activity due to health problems* was also dichotomized, indicating report of long-term physical conditions, mental conditions, or health problems sometimes or often (versus never) reduced the amount or type of activities he/she could do in any principal domain in life. *Self-Rated Health* was dichotomized as fair/poor versus excellent/very good/good health. *Current daily smokers* smoked every day. *Physical inactivity* used a continuous measure of average daily energy expenditure during leisure activities over the past three months. Physically inactive people are defined as having energy expenditures between zero and 1.5 kcal/kg/day (25). Individuals with body mass index of 30 or more were defined as *obese*.

Analyses—Statistical analyses accounted for complex survey design. Descriptive statistics (Table 1 and Table 2) and Multiple logistic regression was used to investigate differentials for each health outcome by foreign-birth for each country, adjusting for covariates. We examined disparities between immigrants and native-borns in each nation, stratified by race (U.S., Table 3, Canada, Table 4). We also performed two sets of direct cross-national comparisons: examining the health status of the most advantaged group in the U.S. (native-born whites) to that of all other immigrant/race groups in both countries (Table 5) and analyzing each immigrant/race stratum in the U.S. to its analog in Canada (Table 6).

RESULTS

Immigrant-Based Health Disparities: United States

In unadjusted models stratified by race, ISB disparities among white Americans were only present for physical activity, but among non-white Americans, immigrants had significantly lower rates of most health outcomes than native-borns, including heart disease, hypertension, asthma and obesity. However, fair/poor self-rated health was more prevalent for immigrants than native-borns in this stratum (Table 2).

Fully adjusted models demonstrated the health of American immigrants was superior to that of native-borns (Table 3, column 2). However, analyses stratified by race revealed many more ISB disparities amongst non-white Americans compared to white Americans (Table 3, columns 3 and 4). Among non-white Americans, native-borns had higher adjusted odds of six outcomes than immigrants, including asthma, arthritis, obesity and current smoking (Table 3).

Within the U.S., comparing all immigrant-race categories to native-born whites, 1) the health of white immigrants differed little, 2) non-white native-borns were more likely to have hypertension, diabetes, obesity, and poor self-rated health but were less likely to be physically inactive or current smokers, and 4) non-white immigrants were more likely to have outcomes like diabetes but less likely to have numerous other outcomes like asthma (Table 5).

Immigrant-Based Health Disparities: Canada

In unadjusted models stratified by race, similar to the U.S., ISB disparities were more numerous among Canadian non-whites than Canadian whites. Among Canadian whites, native-borns had higher rates of asthma and current daily smoking but lower rates of hypertension than immigrants (Table 2). Among Canadian non-whites, native-borns had

higher rates of heart disease, asthma, difficulty with activities, and current daily smoking than immigrants (Table 2).

Fully adjusted models demonstrated only one significant inequality between native-borns and immigrant Canadians – asthma – for which native-borns fared worse. However, analyses stratified by race uncovered a number of significant ISB disparities among non-whites, but none among whites (Table 4). Among non-white Canadians, native-borns were more likely than immigrants to have heart disease, asthma, and difficulty with activities.

The United States and Canada in Comparative Perspective

Compared to the U.S., there were fewer ISB disparities in Canada. However, analyses stratified by race suggest in both countries, no significant disparities exist among whites, while a substantial number of disparities exist among non-whites. In both countries, the comparative health advantage belonged to immigrants. But for many outcomes, the odds of poor health for native-borns were greater in the U.S. than in Canada.

When each immigrant-race group in Canada was compared to a referent group of American native-born whites, the health of each was superior (Table 5). White American immigrants only differed from white Canadian immigrants on one outcome (difficulty with activities). However, cross-national comparisons of all other immigrant-race categories revealed more differences, with Americans generally faring worse than their Canadian counterparts (Table 6).

DISCUSSION

Our study yielded a highly nuanced story. In both countries, immigrant status conferred a protective effect. This finding is consistent with prior literature, and suggests that the compositional characteristics and experiences of American and Canadian immigrants link them and transcend those which make them different.

Despite the similar overall pattern, the U.S. exhibited more ISB disparities than Canada. Cross-national differences in the extent of ISB disparities seem also to be somewhat driven by a healthier immigrant non-white population in Canada, which may be due to differences in the compositional characteristics of immigrants. As aforementioned, our analyses controlled for many of these factors, though not for country of origin. By not accounting for country of origin, we risk not capturing systematic variation among immigrants in factors which influence health such as pre-immigration diet and other norms of everyday living, the social and economic standing of immigrants in their home countries, and reasons for immigration. Put differently, country of origin may provide a marker (albeit crude) for the factors which influence the health of immigrants at earlier points in their life course, and which help to ascertain the meaning of ‘immigrant’ as a social category.

Though our study could not test the effects of specific societal factors which may lead to improved health status for immigrant Canadians, we offer some evidence-based speculations. The U.S. and Canada differ significantly in terms of the overall policy paradigm regarding immigrant integration. The U.S. has been described as having a “laissez-faire” approach to civic citizenship in which ethnic and other groups may use their own resources to promote and maintain cultural expression and to assist newly arrived immigrants in the process of settling. However, public investment in these matters is largely absent (26, 27). In contrast, Canada has maintained, since 1971, an explicit policy of multiculturalism, in which the government and broader society responsible to “...actively recognize cultural diversity and make accommodations for the needs of cultural minorities...” (27). Moreover, specific government programs in Canada have provided

financial support to new immigrants to help them in their settlement in Canadian cities (15, 27).

That our study demonstrates consistency with prior Canada/U.S. studies suggests there may be aspects of society beyond those which are directly pertinent for immigrants and racial/ethnic minorities which create better health overall in Canada. One aspect may be poverty rates, a function of many different policies and programs including higher rates of unionization and thus higher wages, more egalitarian income distribution, and more generous unemployment benefits (8, 28).

CONCLUSION

We suggest multicultural policies, social and taxation policies, and better social cohesion may be responsible for fewer health disparities in Canada.

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Table 1
Demographic Characteristics by Country and Immigrant Status: Joint Canada-United States Survey of Health, 2002

	United States			Canada			US vs. Canada		
	Native-born (n=4259)	Immigrant (n=730)	P Value	Native-born (n=2810)	Immigrant (n=659)	P Value	Native-born US vs. Native-born CA	Immigrant US vs. Immigrant CA	P Value
	% ^a	% ^a		n (%) ^a	n (%) ^a		P Value	P Value	
Age (Mean, SE)	45.9 (0.3)	42.3 (0.6)	<0.001	44.4 (0.4)	47.8 (0.7)	<0.001	0.001		<0.001
Women	52.7	48.4	0.06	50.2	53.2	0.20	0.08		0.11
Nonwhite or Hispanic	21.3	75.6	<0.001	10.5	48.1	<0.001	<0.001		<0.001
Married/common-law/partner	62.8	68.0	0.01	63.9	71.1	0.001	0.41		0.25
Education									
Less than high school	9.9	21.8	<0.001	20.8	15.5	0.002	<0.001		0.005
High school degree or equivalent (GED)	38.2	32.9	0.01	31.7	28.5	0.16	<0.001		0.11
Trade certificate/vocational training	13.7	15.5	0.26	22.2	18.7	0.06	<0.001		0.17
University/college degree/Associates degree	38.2	29.8	<0.001	25.3	37.4	<0.001	<0.001		0.008
Annual household income quintiles									
1st quintile (lowest)	13.8	26.5	<0.001	16.5	20.0	0.05	0.004		0.008
2nd quintile	16.6	19.4	0.12	17.5	18.2	0.68	0.38		0.61
3rd quintile	15.4	12.7	0.07	16.1	16.9	0.65	0.55		0.05
4th quintile	17.3	7.7	<0.001	18.8	13.8	0.004	0.17		0.001
5th quintile	16.5	9.6	<0.001	16.8	13.3	0.04	0.74		0.05
Missing	20.4	24.1	0.05	14.4	17.8	0.08	<0.001		0.01
Home ownership	71.0	43.1	<0.001	67.4	67.7	0.89	0.005		<0.001
No Health insurance	8.9	24.3	<0.001
No regular medical doctor	17.7	34.7	<0.001	14.7	17.3	0.16	0.003		<0.001

P-value for two-sided t-test for difference in proportions; bolded items p 0.05

^aPercents weighted to the US population as determined from the October 2002 Current Population Survey and weighted to Canadian population as determined from the 1996 Census

Table 2

Crude Prevalence of Health Outcomes by Country, Race/Ethnicity and Immigrant Status: Joint Canada-United States Survey of Health, 2002

	United States						Canada					
	White, non-Hispanics			Non-whites			White, non-Hispanics			Non-whites		
	Native-born	Immigrant	P Value	Native-born	Immigrant	P Value	Native-born	Immigrant	P Value	Native-born	Immigrant	P Value
No. of respondents ^b	3493	213		722	516		2537	352		266	299	
Chronic conditions												
Heart Disease	6.1	6.3	0.91	6.4	3.8	0.05	5.3	6.8	0.33	5.5	1.8	0.01
Hypertension	22.5	21.3	0.72	26.7	18.4	0.003	18.0	24.6	0.01	15.9	14.4	0.64
Diabetes	6.2	4.1	0.16	10.9	8.2	0.16	4.5	7.1	0.07	4.8	6.2	0.46
Asthma	11.3	12.0	0.80	14.9	7.4	<0.001	11.2	6.8	0.008	15.2	5.0	<0.001
Arthritis	20.1	21.0	0.76	19.4	9.4	<0.001	17.2	22.0	0.06	13.7	11.2	0.40
Major depression episode	8.5	9.0	0.83	10.4	9.1	0.54	8.5	6.7	0.26	9.1	7.6	0.59
Obese	19.4	15.8	0.21	30.9	16.0	<0.001	16.3	15.7	0.82	14.1	10.1	0.19
Indicators of health status												
Self-rated health fair/poor	11.2	13.6	0.35	19.1	24.3	0.05	11.5	13.1	0.42	11.9	9.2	0.30
Difficulty with activities	28.8	30.7	0.60	31.2	19.8	<0.001	28.0	30.9	0.30	25.9	17.5	0.03
Reduction in activity due to health problems	29.6	27.3	0.49	32.0	21.5	<0.001	30.0	32.2	0.45	27.0	26.1	0.83
Behavioral risk factors												
Physically inactive	56.2	48.4	0.05	55.3	70.6	<0.001	47.1	45.4	0.58	44.7	54.6	0.04
Current daily smoker	18.0	14.7	0.27	17.5	10.0	<0.001	20.5	15.0	0.03	19.1	12.2	0.05

P-value for two-sided t-test for difference in proportions; bolded items p 0.05

^aPercents weighted to the US population as determined from the October 2002 Current Population Survey and weighted to Canadian population as determined from the 1996 Census

^bParticipants without valid race/ethnicity or immigrant status data were excluded; sample size for each outcome vary with missingness on that outcome (0.07%–3.85%)

Immigrant Health Inequities in the United States: Joint Canada-United States Survey of Health, 2002

Table 3

	Native-born vs. Immigrant	Native-born vs. Immigrant	White native-born vs. White immigrant	Non-white native-born vs. Non-white immigrant
N	Crude OR (95% CI)	Adjusted OR ^a (95% CI)	Adjusted OR ^b (95% CI)	Adjusted OR ^b (95% CI)
Chronic conditions				
Heart Disease	4884 1.41 (0.94, 2.11)	1.11 (0.71, 1.73)	0.96 (0.54, 1.71)	1.22 (0.64, 2.31)
Hypertension	4890 1.33 (1.06, 1.66)	1.30 (0.97, 1.73)	1.15 (0.76, 1.76)	1.38 (0.95, 2.01)
Diabetes	4889 0.99 (0.71, 1.38)	1.19 (0.80, 1.77)	1.57 (0.75, 3.29)	1.09 (0.66, 1.78)
Asthma	4894 1.48 (1.08, 2.03)	1.56 (1.05, 2.31)	0.99 (0.60, 1.63)	1.99 (1.21, 3.26)
Arthritis	4890 1.78 (1.40, 2.27)	1.57 (1.16, 2.13)	0.94 (0.63, 1.40)	2.27 (1.50, 3.43)
Major depression episode	4788 0.96 (0.71, 1.31)	1.22 (0.82, 1.82)	0.86 (0.49, 1.49)	1.43 (0.88, 2.33)
Obese	4709 1.47 (1.16, 1.86)	2.11 (1.58, 2.82)	1.28 (0.83, 1.98)	2.57 (1.83, 3.61)
Indicators of health status				
Self-rated health fair/poor	4894 0.52 (0.42, 0.65)	0.79 (0.59, 1.05)	0.78 (0.48, 1.25)	0.79 (0.56, 1.13)
Difficulty with activities	4895 1.41 (1.15, 1.73)	1.46 (1.12, 1.91)	0.89 (0.62, 1.26)	1.96 (1.38, 2.80)
Reduction in activity due to health problems	4870 1.45 (1.18, 1.78)	1.58 (1.22, 2.06)	1.18 (0.81, 1.70)	1.85 (1.32, 2.60)
Behavioral risk factors				
Physically inactive	4894 0.68 (0.57, 0.82)	0.81 (0.65, 1.01)	1.40 (1.02, 1.93)	0.59 (0.44, 0.78)
Current daily smoker	4880 1.75 (1.33, 2.31)	2.31 (1.58, 3.37)	1.25 (0.75, 2.07)	3.16 (2.00, 5.01)

Bolded items p 0.05

White = "White, non-Hispanic"

^aSeparate logistic regression models for each outcome. Odds ratios comparing native-born individuals to immigrants adjusted for age, sex, marital status, health insurance, having a regular doctor, education, income and home ownership.

^bSeparate logistic regression models were run for each outcome. Race-specific comparisons between native-born individuals and immigrants were made by changing the referent group in a four-category race/ethnicity and immigrant status variable (2x2). Odds ratios adjusted for age, sex, marital status, health insurance, having a regular doctor, education, income and home ownership.

Immigrant Health Inequities in Canada: Joint Canada-United States Survey of Health, 2002

Table 4

	N	Crude OR (95% CI)	Native-born vs. Immigrant Adjusted OR ^a (95% CI)	White native-born vs. White immigrant Adjusted OR ^b (95% CI)	Non-white native-born vs. Non-white immigrant Adjusted OR ^b (95% CI)
Chronic conditions					
Heart Disease	3422	1.25 (0.82, 1.91)	1.57 (0.98, 2.51)	1.34 (0.80, 2.23)	2.98 (1.17, 7.57)
Hypertension	3423	0.88 (0.69, 1.10)	1.04 (0.80, 1.36)	1.05 (0.77, 1.42)	1.03 (0.60, 1.75)
Diabetes	3418	0.67 (0.46, 0.97)	0.83 (0.56, 1.24)	0.91 (0.57, 1.46)	0.66 (0.30, 1.47)
Asthma	3424	2.09 (1.45, 3.03)	1.96 (1.27, 3.04)	1.36 (0.85, 2.19)	3.47 (1.74, 6.91)
Arthritis	3419	1.01 (0.79, 1.29)	1.15 (0.87, 1.52)	1.12 (0.81, 1.54)	1.25 (0.70, 2.24)
Major depression episode	3331	1.20 (0.83, 1.74)	1.03 (0.67, 1.57)	0.94 (0.57, 1.55)	1.19 (0.58, 2.42)
Obese	3302	1.29 (0.97, 1.70)	1.21 (0.89, 1.65)	1.07 (0.76, 1.50)	1.65 (0.93, 2.96)
Indicators of health status					
Self-rated health fair/poor	3421	1.01 (0.76, 1.34)	1.13 (0.81, 1.56)	1.11 (0.76, 1.62)	1.18 (0.65, 2.15)
Difficulty with activities	3420	1.17 (0.95, 1.45)	1.23 (0.97, 1.58)	1.10 (0.83, 1.46)	1.62 (1.01, 2.59)
Reduction in activity due to health problems	3401	1.00 (0.82, 1.24)	1.00 (0.79, 1.26)	0.99 (0.75, 1.30)	1.01 (0.65, 1.56)
Behavioral risk factors					
Physically inactive	3409	0.90 (0.75, 1.10)	1.01 (0.81, 1.25)	1.22 (0.94, 1.57)	0.69 (0.47, 1.03)
Current daily smoker	3414	1.61 (1.21, 2.15)	1.26 (0.91, 1.76)	1.13 (0.77, 1.66)	1.57 (0.88, 2.79)

Bolded items p 0.05

White = "White, non-Hispanic"

^aSeparate logistic regression models for each outcome; Odds ratios comparing native-born individuals to immigrants adjusted for age, sex, marital status, having a regular doctor, education, income and home ownership

^bSeparate logistic regression models were run for each outcome. Race-specific comparisons between native-born individuals and immigrants were made by changing the referent group in a four-category race/ethnicity and immigrant status variable (2×2). Odds ratios adjusted for age, sex, marital status, having a regular doctor, education, income and home ownership

Table 5

Comparing White Native-born Americans to Other Groups Defined by Country, Race and Immigrant Status: Joint Canada-United States Survey of Health, 2002

	US White Native-born	US White Immigrant	US Non-White Immigrant	US Non-White Native-born	CA White Native-born	CA White Immigrant	CA Non-White Immigrant	CA Non-White Native-born
N	AOR ^a	AOR ^a	AOR ^a	AOR ^a	AOR ^a	AOR ^a	AOR ^a	AOR ^a
Chronic conditions								
Heart Disease	8306	1.00	1.03	0.95	1.16	0.82	0.65	1.01
Hypertension	8313	1.00	0.87	1.09	1.51	0.73	0.71	0.78
Diabetes	8307	1.00	0.63	1.85	2.00	0.68	0.78	0.83
Asthma	8318	1.00	1.01	0.54	1.05	0.85	0.58	1.18
Arthritis	8309	1.00	1.07	0.42	0.94	0.75	0.66	0.63
Major depression episode	8119	1.00	1.17	0.59	0.83	0.87	0.87	0.91
Obese	8011	1.00	0.78	0.68	1.75	0.70	0.66	0.65
Indicators of health status								
Self-rated health fair/poor	8315	1.00	1.28	1.97	1.53	0.83	0.74	0.91
Difficulty with activities	8315	1.00	1.13	0.51	0.99	0.84	0.71	0.84
Reduction in activity due to health problems	8271	1.00	0.85	0.50	0.91	0.91	0.85	0.84
Behavioral risk factors								
Physically inactive	8303	1.00	0.71	1.36	0.80	0.64	0.53	0.59
Current daily smoker	8294	1.00	0.80	0.20	0.64	1.04	0.87	0.90

Bolded items p 0.05

US= United States; CA= Canada; White = "White, non-Hispanic"

^aSeparate logistic regression models were run for each outcome. Odds ratios adjusted for age, sex, marital status, health insurance, having a regular doctor, education, income, home ownership

Table 6
Comparing Americans and Canadians by Race and Immigrant Status, Joint Canada-United States Survey of Health, 2002

		White US immigrant vs. White CA immigrant	Non-white US immigrant vs. Non-white CA immigrant	White US native born vs. White CA native born	Non-white US native born vs. Non-white CA native-born
	N	AOR ^a (95% CI)	AOR ^a (95% CI)	AOR ^a (95% CI)	AOR ^a (95% CI)
Chronic conditions					
Heart Disease	8306	1.58 (0.76, 3.31)	2.83 (1.13, 7.11)	1.22 (0.94, 1.59)	1.15 (0.60, 2.22)
Hypertension	8313	1.21 (0.74, 2.00)	1.42 (0.86, 2.35)	1.38 (1.17, 1.63)	1.93 (1.27, 2.95)
Diabetes	8307	0.81 (0.35, 1.85)	1.47 (0.77, 2.82)	1.47 (1.12, 1.93)	2.40 (1.24, 4.66)
Asthma	8318	1.74 (0.89, 3.38)	1.63 (0.82, 3.23)	1.18 (0.96, 1.45)	0.89 (0.56, 1.43)
Arthritis	8309	1.62 (0.99, 2.66)	0.80 (0.46, 1.38)	1.34 (1.12, 1.60)	1.49 (0.93, 2.41)
Major depression episode	8119	1.35 (0.66, 2.76)	0.81 (0.42, 1.56)	1.15 (0.92, 1.45)	0.92 (0.52, 1.63)
Obese	8011	1.17 (0.69, 1.99)	1.52 (0.91, 2.54)	1.42 (1.20, 1.69)	2.69 (1.75, 4.12)
Indicators of health status					
Self-rated health fair/poor	8315	1.73 (0.96, 3.10)	2.52 (1.47, 4.31)	1.20 (0.98, 1.47)	1.69 (1.06, 2.67)
Difficulty with activities	8315	1.59 (1.03, 2.47)	0.97 (0.61, 1.54)	1.19 (1.03, 1.39)	1.17 (0.78, 1.76)
Reduction in activity due to health problems	8271	1.00 (0.63, 1.56)	0.58 (0.38, 0.88)	1.10 (0.95, 1.27)	1.09 (0.74, 1.60)
Behavioral risk factors					
Physically inactive	8303	1.35 (0.91, 2.00)	1.53 (1.08, 2.16)	1.57 (1.38, 1.79)	1.36 (0.96, 1.92)
Current daily smoker	8294	0.92 (0.50, 1.70)	0.37 (0.20, 0.68)	0.97 (0.82, 1.14)	0.71 (0.46, 1.09)

Bolded items p 0.05

US= United States; CA= Canada; White = "White, non-Hispanic"

^aSeparate logistic regression models were run for each outcome. Comparisons between Americans and Canadians were made by varying the referent group in a 8-category country by race by immigrant status variable (2x2x2). Odds ratios adjusted for age, sex, marital status, health insurance, having a regular doctor, education, income, home ownership